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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/738,045	12/15/2000	Thomas M. Shay	37000UT9918	2319

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EXAMINER

TRAN, DZUNG D

ART UNIT	PAPER NUMBER
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2633

DATE MAILED: 11/24/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/738,045

Applicant(s)

SHAY ET AL.

Examiner

Dzung D Tran

Art Unit

2633

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 December 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-8 is/are allowed.
- 6) ☒ Claim(s) 9 and 11-18 is/are rejected.
- 7) ☒ Claim(s) 10 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Specification

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 11-18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 11 recites the limitation "the step of transmitting comprises transmitting with a diode laser" in lines 1-2. There is insufficient antecedent basis for this limitation in the claim.

Claim 12 recites the limitation " the step of separating the transmitted and returned electromagnetic beams comprises separating with an aperture sharing element comprising a mirror with an opening defined therein, through which the transmitted and returned beams pass" in lines 1-3. There is insufficient antecedent basis for this limitation in the claim.

Claim 13 recites the limitation " the step of assigning left-handed and right-handed circular polarizations to the beam incident on the object according to binary data bit information comprises flipping the incident right-hand polarized beam into a left-hand polarized beam to represent a first binary state and leaving the incident right-hand polarized beam unchanged for the second binary state" in lines 1-5. There is insufficient antecedent basis for this limitation in the claim.

Claim 14 recites the limitation " the step of separating the transmitted and returned electromagnetic beams further comprises sending less than 1 percent of the returned beam to a first FADOF and the remaining portion of the returned beam to a second quarter-wave plate to be converted into the two orthogonal polarized beams " in lines 1-4. There is insufficient antecedent basis for this limitation in the claim.

Claim 15 recites the limitation "the step of separating the two orthogonally polarized beams comprises:

receiving one of the orthogonally polarized beams at a second FADOF;
receiving the other of the orthogonally polarized beams with a third FADOF; and
subtracting the orthogonally polarized beams received by each of the FADOFs "

in lines 1-5. There is insufficient antecedent basis for this limitation in the claim.

Claim 16 recites the limitation "the step of achieving a data rate of up to 10 kbps with a signal-to-noise-ratio greater than 2,100 during the optical communication " in lines 1-2. There is insufficient antecedent basis for this limitation in the claim.

Claim 17 recites the limitation "the step of transmitting a linearly polarized electromagnetic beam to an object comprises transmitting a beam having a signal power less than or equal to 0.2 watts" in lines 1-3. There is insufficient antecedent basis for this limitation in the claim.

Claim 18 recites the limitation " the step of assigning right-hand and left-hand circular polarizations to represent binary states" in lines 1-2. There is insufficient antecedent basis for this limitation in the claim.

It appears that claims 11-18 are depend on claim 10. Therefore, it would be allowable if rewritten in independent form including all of the limitations of the claim 10.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 9 and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Darcie et al. US patent no. 5,815,295.

Regarding claim 9, Darcie discloses a communication system comprising a pair of data modulation formats (figure 1, elements 20, 115) for the forward and return data links such that the forward data electro-magnetic beam also serves a carrier for the return data (figures, 1, 2, col.4, line 50 to col. 6, line 44).

Regarding claim 11, Darcie discloses laser source is laser diode (, figure 1, element $\lambda 1$, col. 10, line 13).

5. Claim 18 is rejected under 35 U.S.C. 102(b) as being anticipated by Fan et al. US patent no. 5,838,653.

Regarding claim 18, Fan discloses a method of encoding optical information, the method comprising the step of assigning right hand and left hand circular polarizations to represent binary states (figures 13A, col. 6, lines 45-61).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Darcie et al. US patent no. 5,815,295 in view of Fugate et al. US patent no. 5,176,728.

Darcie does not disclose an aperture sharing element comprising a mirror with an opening. Fugate discloses an aperture sharing element comprising a mirror with an opening (figure 1, element 32, col. 3, lines 39-43). At the time of the invention was made, it would have been obvious to a person of ordinary skill in the art to include the aperture sharing element of Fugate in the system of Darcie. One of ordinary skill in the art would have been motivated to do that in order to separate the optical beam and redirect a portion of optical beam for controlling.

8. Claims 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Darcie et al. US patent no. 5,815,295.

a communication system having a data rate of up to 10 kbps with the SNR greater than 2,100 or a signal power less than 0.2 watts is well known in the art (for example: voice data rate is 8 kbps and when a noise signal approach to zero the SNR approach to infinitive). Therefore, if it not inherent, it would have been obvious that a

communication system with a data rate of up to 10 kbps with the SNR greater than 2,100 and a signal power less than 0.2 watts is merely an engineer design choices.

9. Claims 1-8 are allowed.

10. Claim 10 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a. Kamitani U.S. patent no. 6,359,712. Bidirectional optical communication apparatus and optical remote control apparatus

b. Fischer et al. U.S. patent no. 5,978,121. Method and device for the optical transmission of data over distances in space

c. Masuzawa et al. U.S. patent no. 6,414,773. Optical digital apparatus

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dzung Tran whose telephone number is (703) 305-0932.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

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Supervisor, Jason Chan, can be reached on (703) 305-4729.

The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9314.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.



JASON CHAN
SUPERVISORY PATENT EXAMINER
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